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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/564,573 | 01/13/2006 | Dominic J. Heuscher | PHUS030239US | 3323 |
| 38107 7590 08/29/2007 PHILIPS INTELLECTUAL PROPERTY & STANDARDS 595 MINER ROAD CLEVELAND, OH 44143 | | | EXAMINER YUN, JURIE | |
| | | | ART UNIT 2882 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/564,573 | Applicant(s) HEUSCHER, DOMINIC J. | |
| | Examiner Jurie Yun | Art Unit 2882 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 22-29 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-13, 17, 18, 20 and 22-24 is/are allowed.
- 6) ☒ Claim(s) 25, 26 and 29 is/are rejected.
- 7) ☒ Claim(s) 14-16, 19, 27, 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The amendment filed 7/9/07 has been entered.

Claim Objections

2. Claim 14 is objected to because of the following informalities: in lines 4-5, there is lack of antecedence for "the cylinder axis". Appropriate correction is required.
3. Claims 15 and 16 are objected to because of the following informalities: in line 1, there is lack of antecedence for "The computed tomography imaging system". This should be "The CT scanner". Appropriate correction is required.
4. Claim 19 is objected to because of the following informalities: there is lack of antecedence for "the at least one electron beam." It appears as though claim 19 should depend on claim 18, and has been treated as such. Appropriate correction is required.
5. Claim 27 is objected to because of the following informalities: in line 2, there is lack of antecedence for "the radiation beam". Appropriate correction is required.
6. Claim 28 is objected to because of the following informalities: in lines 2-3, there is lack of antecedence for "the cylinder axis". Appropriate correction is required.
7. Claim 29 is objected to because of the following informalities: in line 1, there is lack of antecedence for "the radiation source" (for both instances). Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 25 and 29 are rejected under 35 U.S.C. 102(e) as being anticipated by Nelson et al. (USPN 6,583,420 B1).

10. With respect to claim 25, Nelson et al. disclose an x-ray tube, comprising: a rotating cylindrical anode; an electron accelerator that accelerates electrons toward a region on the surface of the cylindrical anode to produce a focal spot; and an anode positioner that selectively positions the cylindrical anode longitudinally with respect to the electron accelerator (Figs. 7c-7d & column 18, lines 10-39 & column 18, line 66 - column 19, line 2).

11. With respect to claim 29, Nelson et al. disclose the X-ray tube is part of a computed tomography system (Fig. 9a).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson et al. (USPN 6,583,420 B1) as applied to claim 25 above, and further in view of Shaw, IV (USPN 4,039,836) – hereinafter referenced “Shaw”.

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14. With respect to claim 26, Nelson et al. disclose an embodiment where different and distinct anodes are abutted such that a single elongated anode is present, and the entire anode can be shifted depending on which anode material is desired (column 18, line 66 - column 19, line 2). Nelson et al. do not disclose the anode positioner reciprocates the cylindrical anode to sweep the accelerated electrons back and forth along the anode and, thereby, sweep the focal spot back and forth along the anode. Shaw teaches an electron accelerating means (97) for accelerating electrons toward at least one selected spot on the target outer surface region of the cylindrical anode to generate x-rays; and a sweep means (99, 101, 102, 103) for relatively longitudinally sweeping the at least one selected spot across the target outer surface region of the cylindrical anode (column 8, lines 7-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply this teaching to the embodiment of Nelson et al. discussed above, and to have the anode positioner reciprocate the cylindrical anode to sweep the accelerated electrons back and forth along the anode within the same material region and, thereby, sweep the focal spot back and forth along the anode, to prevent overheating and thus longer operational life of the anode.

Allowable Subject Matter

15. Claims 27 and 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and if rewritten to overcome the objections cited above.

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The following is a statement of reasons for the indication of allowable subject matter: Prior art fails to disclose an X-ray tube comprising a rotating cylindrical anode and a cylindrical helical-slot collimator adapted to collimate the radiation beam, as claimed in claim 27. Claim 28 is allowable due to its dependency on claim 27.

16. Claims 1-24 are allowed, but claims 14-16 and 19 would need to be amended to overcome the objections cited above.

The following is an examiner's statement of reasons for allowance:

Prior art fails to disclose an x-ray tube that injects an x-ray conebeam into an examination region, the x-ray tube including a rotating helical-slot collimator that rotates around the cylindrical anode, and a sweep means for relatively longitudinally sweeping the at least one selected spot across the target outer surface region of the cylindrical anode in coordination with rotating the helical-slot collimator, as claimed in claim 1.

Claims 2-13 are allowed due to their dependency on claim 1.

Prior art fails to disclose a CT scanner including a cylindrical helical-slot collimator, surrounding the rotating cylindrical anode, adapted to collimate the generated x-rays as the spot sweeps across the target, as claimed in claim 14. Claims 15-16 are allowed due to their dependency on claim 14.

Prior art fails to disclose a method of generating x-rays including rotating a helical-slot collimator around a collimator axis that is parallel to the cylinder axis, and relatively sweeping the at least one selected spot continuously across the target outer surface region of the cylindrical anode along a beam trajectory substantially parallel to

the cylinder axis and in coordination with rotating the helical-slot collimator, as claimed in claim 17. Claims 18-20 and 22-24 are allowed due to their dependency on claim 17.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

17. Applicant's arguments filed 7/9/07 with respect to claims 1-24 have been fully considered and are persuasive. The rejection of claims 1-24 has been withdrawn.

Conclusion

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jurie Yun whose telephone number is 571 272-2497. The examiner can normally be reached on Monday-Friday 8:30-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on 571 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Jurie Yun
Examiner
Art Unit 2882

August 24, 2007